

# Tempe Aviation Commission

## IGA Monitoring Report

Month:

August 2004

Prepared by:

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# 1. Introduction

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This report is prepared by TAVCO to monitor the compliance of operations at Phoenix Sky Harbor International Airport with certain noise mitigation flight procedures over the City of Tempe. The Tempe Aviation Commission (TAVCO) consists of Tempe residents selected by the Tempe Mayor and City Council to assist and advise on aviation issues. The City of Tempe is located directly east of the Phoenix Sky Harbor International Airport in Phoenix, which has 3 parallel runways, Runway 8/26, Runway 7L/25R and Runway 7R/25L.

In 1994 the City of Phoenix and the City of Tempe agreed to continue noise mitigation flight procedures already in use over Tempe and to introduce a new procedure for aircraft arriving over Tempe to the new third runway (7R/25L) at Phoenix Sky Harbor International Airport from the east. Tempe had prior to the agreement challenged the plans for the construction of a third runway because of inadequate assessment of the environmental impacts.

## a) The 4-DME procedure

### The 1993 Environmental Impact Statement (EIS)

According to the EIS, which among other planned improvements included the construction of a third runway, departures to the east from the new runway would follow the so-called "One-DME" Standard Instrument Departure procedure (SID) similar to the SID already in use by aircraft departing to the east from the airport<sup>1</sup>.

### Standard Instrument Departure Procedure (SID)

### The 1994 Record of Decision

The continued use of the "One-DME" procedure was also stated in the Record of Decision (ROD) where the FAA approved the plans for a third runway. When Phoenix and Tempe signed the Intergovernmental Agreement (IGA) on noise mitigation flight procedures over Tempe, the FAA reaffirmed its commitment to uphold these procedures. The "One-DME procedure" became the "4-DME procedure" when a navigational aid (VORTAC) was moved.



North Runway 8L (Now 8): "Fly heading 085° to intercept PHX-075, across PXR R-350 at or below 3,000'. At 4 DME east of PHX VORTAC, turn right/left"  
Center Runway 8R (Now 7L): " Fly direct PHX VORTAC, cross PHR at or below 3,000'. Proceed via PHX R-075 to 4 DME east, turn right/left" (FAA SW-1 of August 10, 2000)

### Measure for Departure Procedure Compliance

Based on the 4-DME Standard Instrument Departure procedure (SID) TAVCO proposed a corridor along the Salt River to measure how commercial jet aircraft and large turboprop aircraft<sup>2</sup> complied with the "4-DME procedure" using the Noise and Flight Track Monitoring System that the airport had agreed to install. This proposal was adopted by the Tempe City Council, but was rejected by the City of Phoenix. The airport use a vertical line to measure compliance of jet departures called the "4-DME Gate" or the "Exit Window Only Gate", which is a 5,500 feet long imaginary line running

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<sup>1</sup> Source: Final Environmental Impact Statement Phoenix sky Harbor International Airport Master Plan Update Improvements, November 1993, Section 5.

<sup>2</sup> Aircraft certified and operated according to Title 14 FAR Part 121 or 135 with gross weight exceeding 12,500 pounds.

north south at 4-DME or approximately at Price Road. Turns by carrier jets north or south away from the Salt riverbed before reaching this line, or failures to stay inside the north or south end of this line are registered and in a compiled format submitted to the airlines in a "Notice of Deviation" letter by the airport. Deviations influenced by local weather conditions are excluded from the notification procedure.

This report compares departure compliance using the Tempe Corridor and the Phoenix "4-DME Gate" or "Exit Window Only Gate", and includes large turboprop aircraft because they are part of the 1994 agreement. Since the implementation of the "4-DME Gate" deviation standard for large carriers in 1997, the main issue of concern has been how well these aircraft on departure from Phoenix Sky Harbor International Airport to the east keep to the Salt riverbed and avoid flying over populated areas in Tempe.

### **b) The "Side Step" procedure**

This is a noise mitigating procedure for jets and large turboprop aircraft that approach Phoenix Sky Harbor International Airport from the east to land on the new south runway, Runway 25L. Aircraft are directed to approach the center runway, Runway 25R, until they are 3 NM from the runway end or abeam Sun Devil Stadium at Mill Avenue in Tempe. At this point the pilot can be requested by the Phoenix Air Traffic Control to change the approach course to land on Runway 25L. When the pilot directs the aircraft from a stabilized approach to the Runway 25R towards the left and line up for landing on Runway 25L, the pilot performs a "side step procedure". This procedure is designed to keep large aircraft approaches over the river bed as long as possible before they close in towards neighborhoods in downtown Tempe south of the riverbed.



No measure has been set up in the airport Noise and Flight Track Monitoring System to monitor the use of this procedure, and in its present format this report does not include any data on the utilization of the "side step" procedure.

On March 27, 2002 the FAA suspended implementation of a charted "side step" procedure because of flight safety concerns. Presently the FAA is clearing jets and large turboprop aircraft for straight-in approaches to Runway 25L from the east.

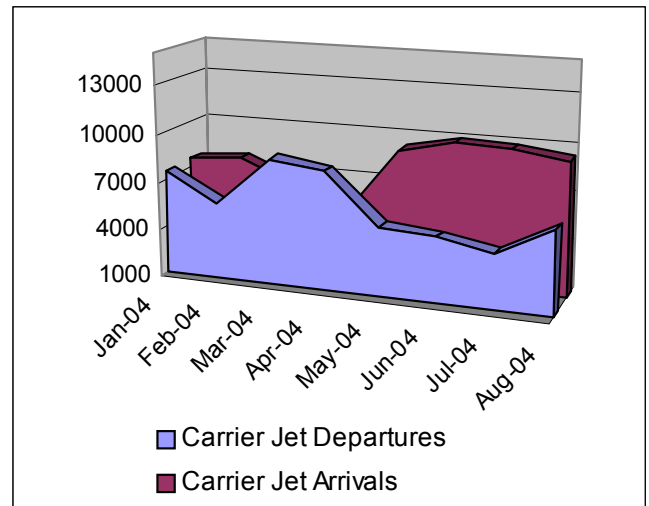
### **c) Departure Split (Equalization)**

This procedure attempts to disperse evenly on an annual basis the noise impact of departing eastbound and westbound aircraft between Tempe and Phoenix during day and nighttime hours.

## 2. Aircraft Operations

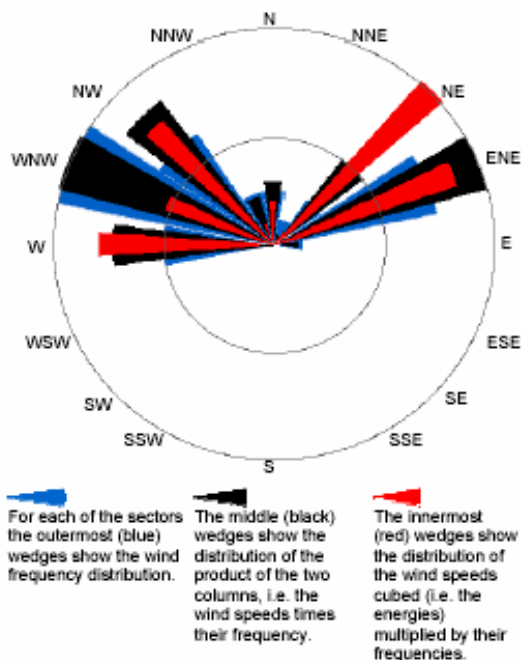
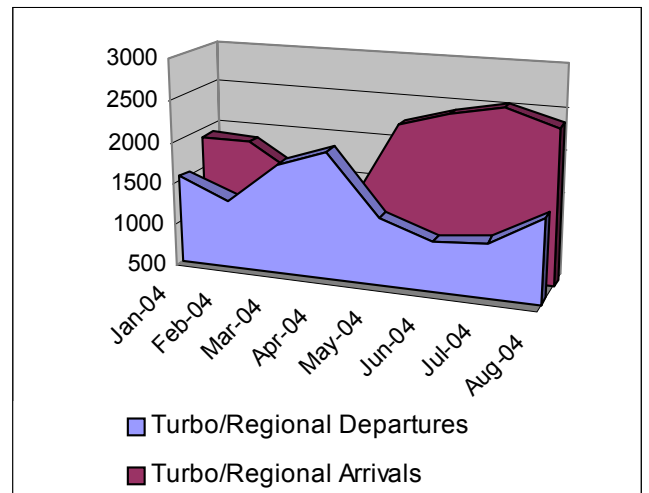
### Carrier Aircraft

The number of large carrier jets departing to the east during the month of August 2004 increased 38.7% compared to July 2004. Carrier arrival operations from the east towards the west decreased 4.4% compared to operations in July 2004.



### Regional Jets & Large Turboprop Aircraft

Regional jets and large turboprop departures towards the east increased by 30.2% in August 2004 compared to July 2004. The number of regional jets and large turboprop aircraft arriving from the east decreased by 7.2% compared to the previous month.

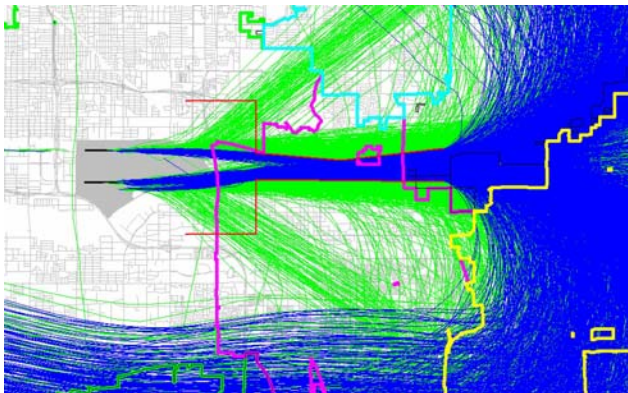


Moderate winds mainly from the northwest and northeast, with gusts up to moderate breeze, 14.8 knots, during one afternoon.

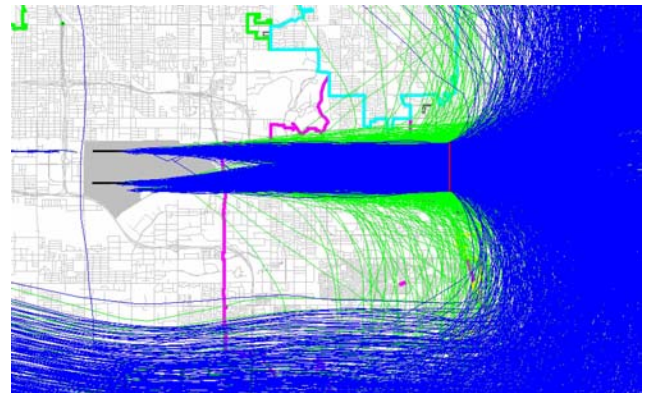
### 3. Departure Compliance

#### Compliance Rates

Including the large turboprop aircraft, which routinely are routed on approximate departure angles of 120° towards the southeast and 60° towards the northeast, **62.0%** of all jet and larger turboprop aircraft departures to the east complied with the Tempe Corridor during the month of August 2004. 97.1% of the jets complied with the Phoenix 4 DME gate. Departures by large turboprop aircraft are not included in the Phoenix gate compliance rate.



Flight tracks inside the Tempe Corridor are depicted in blue.



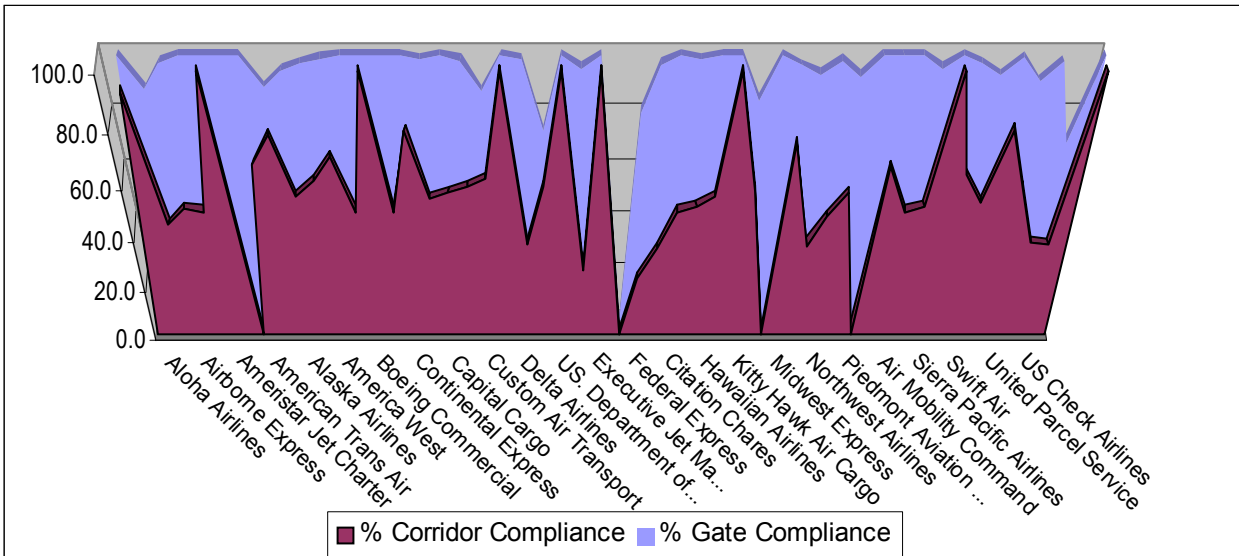
Flight tracks inside the Phoenix Gate are depicted in blue.

Carrier	ICAO Code	%	Carrier	ICAO Code	%	Carrier	ICAO Code	%
Aloha Airlines	AAH	92.9	Continental Airlines	COA	59.5	Midwest Express	MEP	75.0
American Airlines	AAL	44.7	Custom Air Transport	CTT	62.5	GA	N	36.8
Airborne Express	ABX	51.2	Casino Express	CXP	100.0	Northwest Airlines	NWA	47.9
Air Canada	ACA	50.0	Delta Airlines	DAL	37.4	Flight Options	OPT	57.1
Ameristar Jet Charter	AJI	100.0	DHL Airways	DHL	59.3	Piedmont Aviation Services	PCE	0.0
Ameriflight	AMF	0.0	US Department of Justice	DOJ	100.0	Pacific Jet	PCJ	66.7
American Trans Air	AMT	67.5	Executive Jet Aviation	EJA	27.3	Air Mobility Command	RCH	50.0
Aero Mexico	AMX	77.8	Executive Management	EJM	100.0	Sky West	SKW	51.9
Alaska Airlines	ASA	55.6	Elliott Aviation	ELT	0.0	Sierra Pacific Airlines	SPA	100.0
Mesa Airlines	ASH	61.6	Federal Express	FDX	23.9	Southwest Airlines	SWA	63.5
America West	AWE	70.1	Frontier Airlines	FFT	35.5	Swift Air	SWQ	53.3
British Airways	BAW	50.0	Citation Chares	FIV	50.0	United Airlines	UAL	79.7
Boeing Commercial	BOE	100.0	Farelas	FRL	51.9	United Parcel Service	UPS	59.1
Miami Air	BSK	50.0	Hawaiian Airlines	HAL	55.6	US Airways	USA	38.3
Continental Express	BTA	79.3	Kalitta	KFS	100.0	US Check Airlines	USC	37.0
Atlantic Southeast	CAA	54.8	Kitty Hawk Air Cargo	KHA	47.7	Corporate Flight	VHT	100.0
Capital Cargo	CCI	57.1	Flexjet	LXJ	0.0			

Departures excluded<sup>3</sup>:

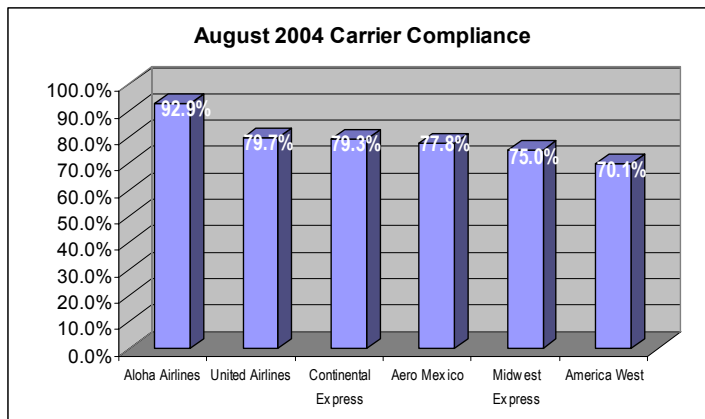
8/1/2004 6:53-11:29 p.m.	8/13/2004 8:46-11:00 p.m.	8/20/2004 8:54-9:58 p.m.
8/4/2004 8:55-9:18 a.m.	8/15/2004 9:28-10:30 p.m.	8/22/2004 8:56-9:24 a.m.
8/9/2004 9:48-10:20 p.m.	8/16/2004 7:08-7:31 p.m.	8/24/2004 9:39-10:09 p.m.
8/10/2004 6:48-7:48 p.m.	8/18/2004 6:31-10:03 p.m.	

<sup>3</sup> Based on Phoenix evaluations of weather influencing navigation east to 4DME.

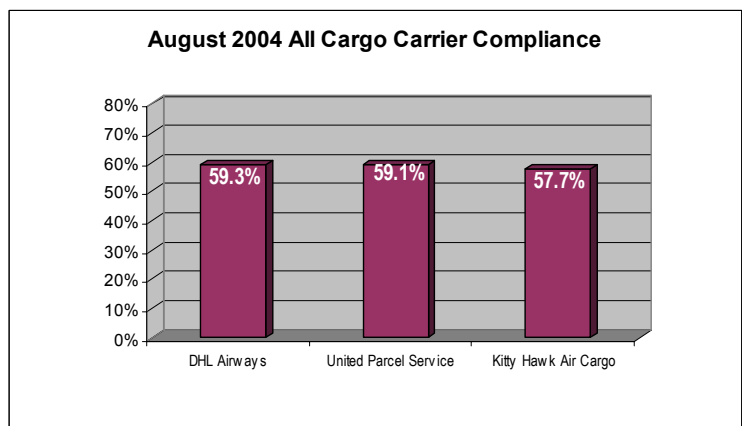


### Top Airlines

Among the carriers with over 10 departures to the east during the month of August 2004, 6 had more than 70% of their aircraft stay within the Tempe Corridor. This is an improvement from last month when the top 6 airlines had 65% or more of their aircraft comply with the Tempe Corridor.



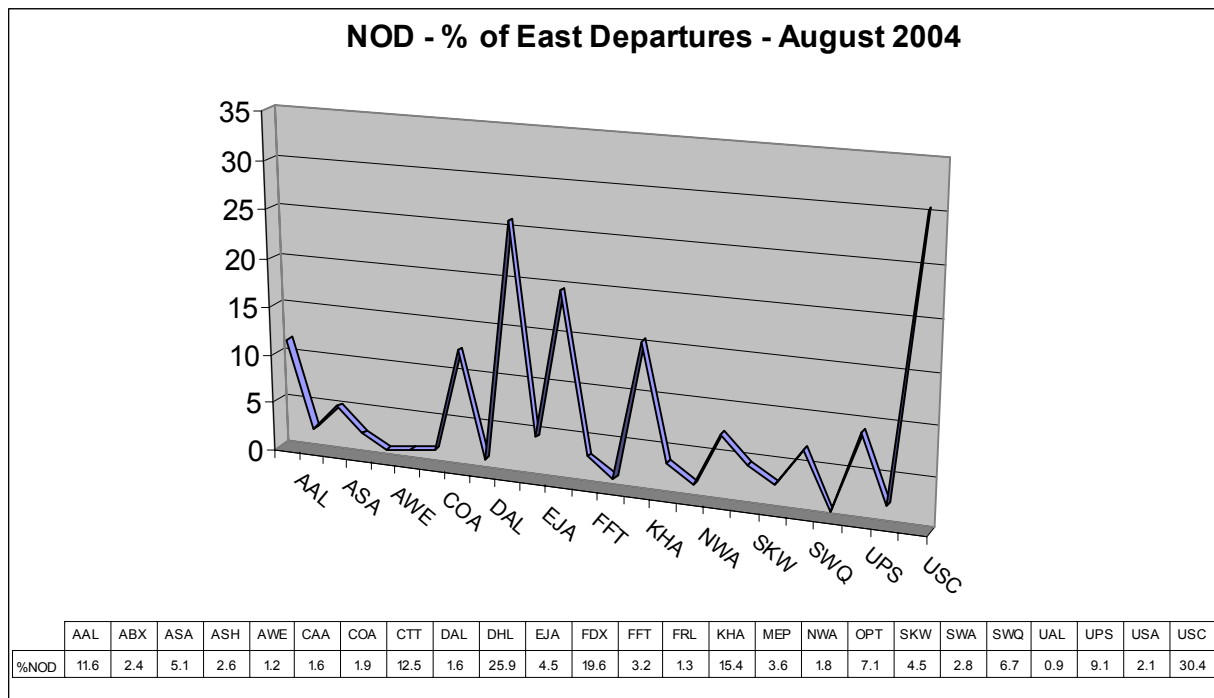
The compliance rates for the top cargo carriers with more than 10 departures to the east during the month of August 2004 was just below 60%, a slight decrease from last month, when the top 3 airlines had between 50 and 70% of their aircraft in compliance with the Tempe Corridor.





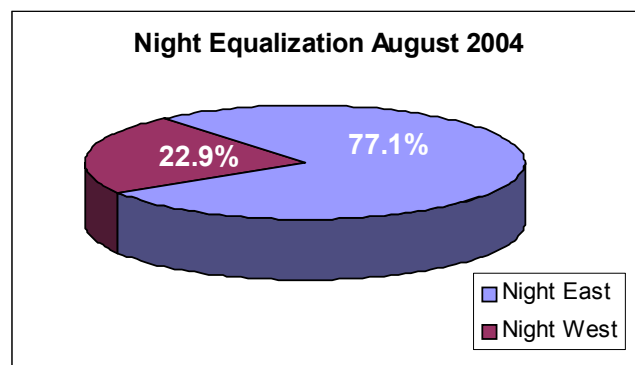
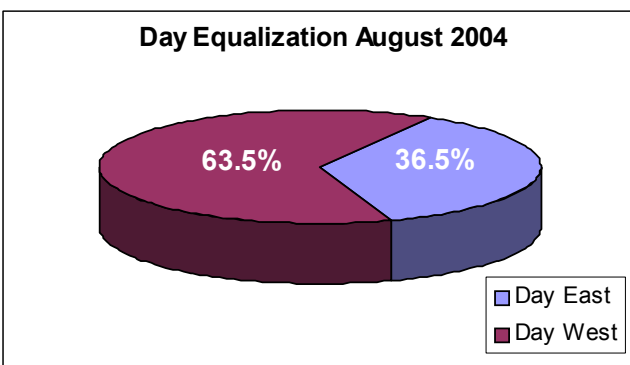
### Notice of Deviation

The City of Phoenix issues Notice of Deviation (NOD) to airlines, which jets fail to comply with the 4DME Gate. Among the airlines with at least 5 departures to the east during the month of August 2004, US Check Airlines and DHL received the most notices relative to the number of east departures registered for each airline.



## **4. East/West Departure Split**

The split in carrier jet and large commuter aircraft departures to the east and west of the Phoenix Sky Harbor International Airport is generally not as favorable for Tempe during the nighttime hours compared to daytime hours. This was quite apparent In August 2004 when 77.1% went east during nighttime and 36.5% went east during daytime.

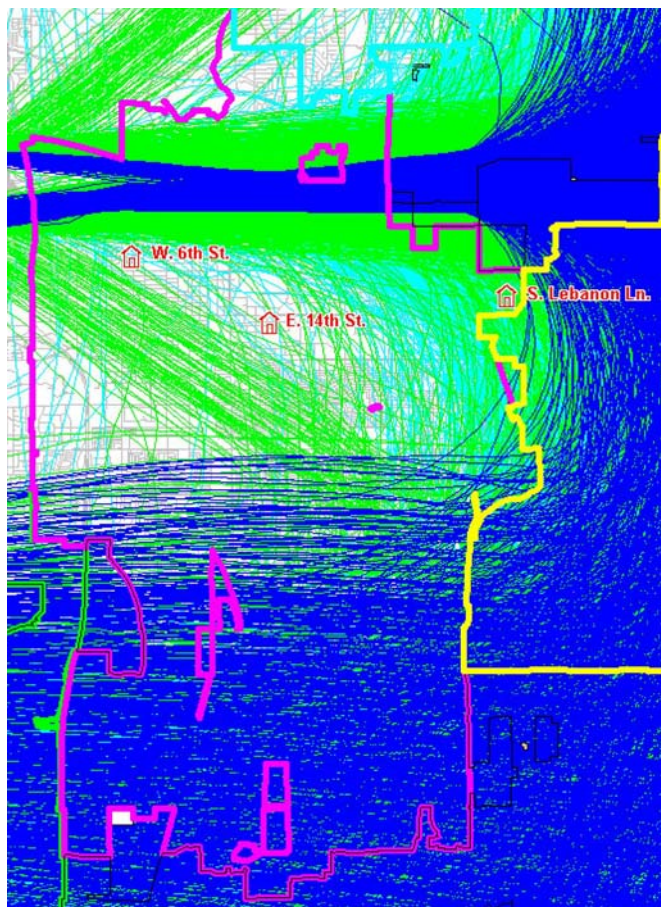


Day and nighttime departures are generated by a query covering day + evening hours and nighttime hours. Day = 7: 00 a.m. to 9:59:59 p.m. local time and Night = 9:59:59 p.m. to 7:00 a.m.

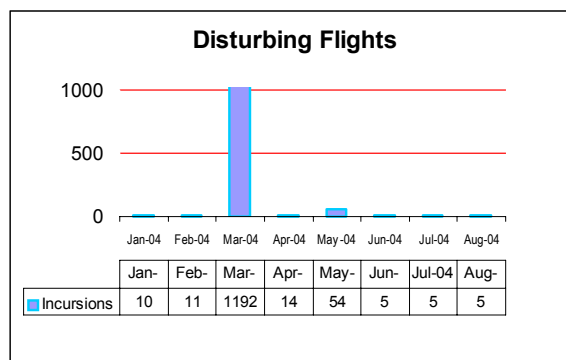
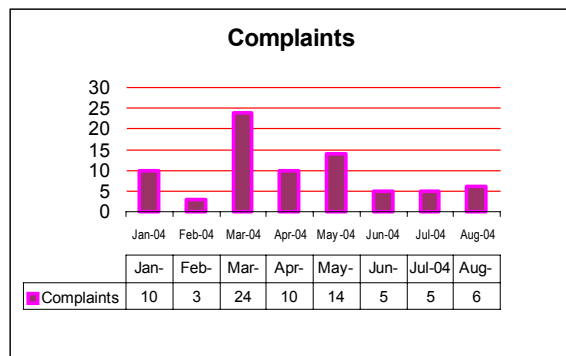


## 5. Complaints

The City of Tempe started registering aircraft noise complaints from Tempe residents in October 2000 after the opening of the third runway at Phoenix Sky Harbor International Airport. During August 2004, 3 residents filed 6 aircraft noise complaints with the City of Tempe. 5 flights were identified as disturbing by being very noisy or off course. This includes 2 complaints over low arrivals from the southeast towards the airport crossing over areas south of University Drive, and 4 complaints from one resident listing 7092 noise events as being disturbing from August 8, 2004 through August 29, 2004.



Green flight tracks = Departures outside the Tempe Corridor  
 Blue flight tracks = Departures inside the Tempe Corridor  
 Turquoise flight tracks = Arrivals  
 Addresses of residents that filed complaints = 🏠



The graph does not include the 7092 noise events reported in August 2004 by one resident.